

Department of Energy Technology Readiness Assessments – Process Guide and Training Plan

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Outline

- TRA Background
- Methodology
- Pilot TRAs Conducted
- TRA/TMP Process Guide
- Training Plan
- Next Steps



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Why Conduct a TRA?

- Provides tool for DOE-EM management to evaluate & communicate status of technology development in a consistent manner
- Provide information for DOE-EM management to assess maturity of technology to support design/construction projects
 - TRA process is a structured, systematic and well-documented methodology
 - Consistent with practice at other agencies with large, technologically complex projects (NASA, DoD)
- TRA process has proven to be a useful tool to support project management decisions and, thereby, potentially limit costs and schedule overruns
- GAO has recommended the technology readiness assessment process to DOE (GAO-07-336)
- Draft FY2008 House appropriation (HEWD) language directed TRA use



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Methodology for Determination of TRA

- Based upon method in *Department of Defense, Technology Readiness Assessment (TRA) Handbook*, May 2005 (under revision)
- Steps in TRA
 1. Identification of Critical Technology Elements (CTEs)
 2. Completion of TRL Assessment for each technology/component
 3. Prepare a Technology Maturation Plan (TMP) for technologies with TRL lower than deemed appropriate



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Pilot TRAs Conducted

To date, DOE-EM has conducted a number of pilot reviews a process patterned on the DOD guide:

- Hanford Waste Treatment and Immobilization Plant (WTP) Analytical Laboratory, Low Activity Waste (LAW) Facility and Balance of Facilities (3 TRAs)
- WTP High-Level Waste (HLW) Facility
- WTP Pre-Treatment (PT) Facility
- Hanford River Protection Project Low Activity Waste Treatment Alternatives
- Hanford K Basins Sludge Treatment Process
- Savannah River Tank 48H Waste Treatment Technologies
- U-233 Downblending Project
- ... and more are scheduled



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Preparation of TRA Process Guide

- External criticism of DOE-EM's lack of established procedure led to development of TRA/TMP Process Guide
- Working with participants of pilot TRAs, drafted TRA/TMP Process Guide
 - substantial effort went into tailoring the question set
- Draft TRA/TMP Process Guide sent to headquarters and field organizations for review/comment



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Preparation of TRA Process Guide (cont.)

- Final TRA/TMP Process Guide issued 3/2008
- TRA/TMPs being incorporated into requirements for management of major projects (DOE Order 413.3, Project and Program Management of Capital Asset Projects)
- Federal Project Directors and contractors required to use guide as part of their project
- Plans to revise Guide on an annual basis
- Growing interest and support of Guide by other DOE offices

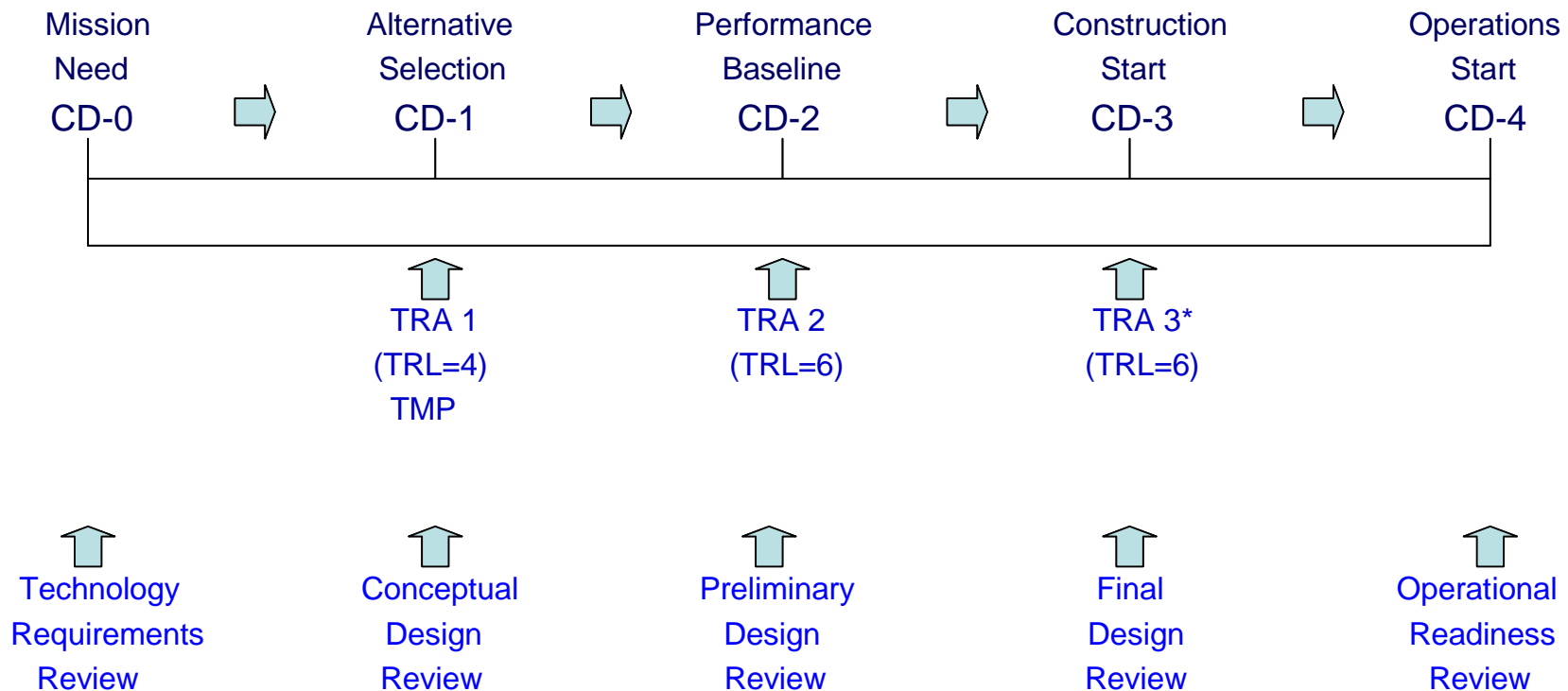


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Suggested Technology Readiness Assessments and Other Review Requirements for Critical Decisions



* TRA 3 required if there is technology modification/change on going from preliminary to final design.

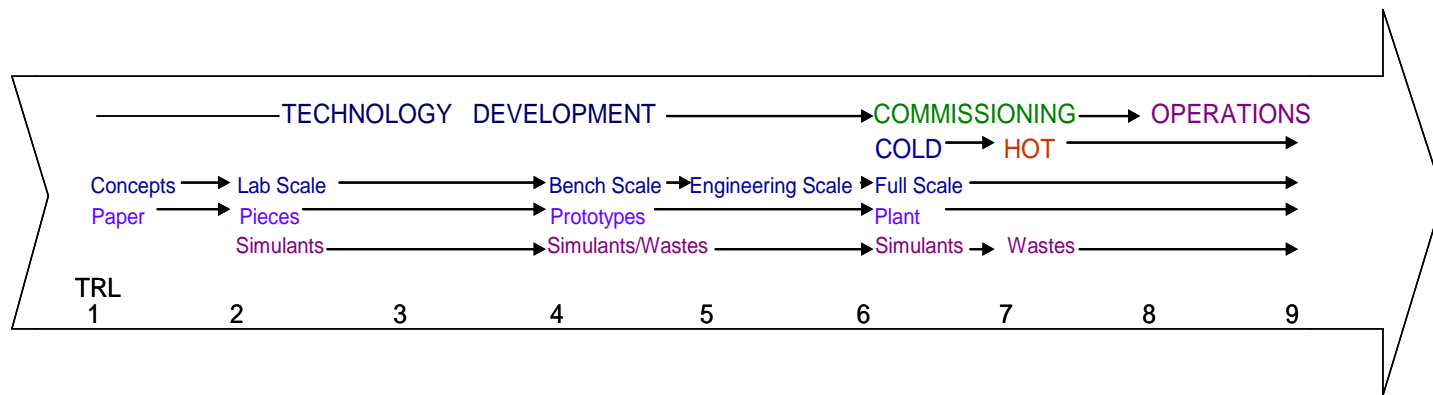


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DOE Technology Readiness Levels



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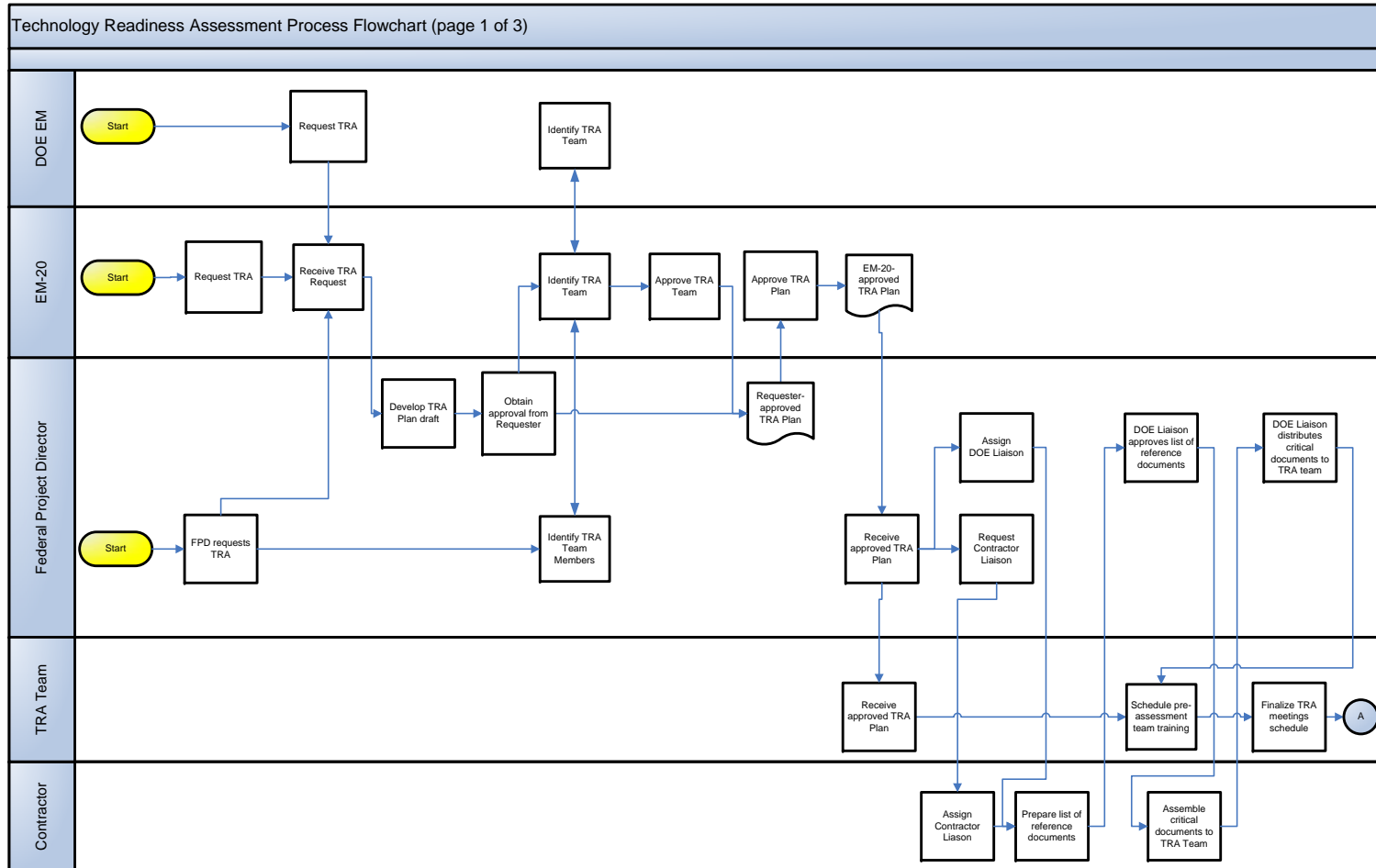
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Guide - Table of Contents

- Technology Readiness Assessment Process
 - Process Overview
 - Key Roles and Responsibilities
 - TRA Team Independence
 - Assessment Planning
 - Assessment Execution

Technology Readiness Assessment Process Diagram



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Typical TRA Timeline

- TRA Requested Week 0
- TRA Plan Submitted to EM-20 Week 2
- TRA Team Established by EM-20 Week 8
- Critical Documents Distributed to Team Week 12
- Onsite Assessment Activities Begin Week 16
- Draft TRA Report Issued for Comment Week 20
- Final TRA Report Issued Week 24



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Typical TMP Timeline

- Begin TMP Week 0
- Draft TMP Completed Week 8
- Review TMP Week 10
- Final TMP Week 12
- Prepare Test Plans Including Cost and Schedule Week 20
- Approve Test Plans Week 24
- Incorporate Test Plans Into Baseline Project
Dependent



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Key Roles and Responsibilities

- Assistant Secretary of Energy for Environmental Management (DOE-EM)
- EM-20 (Office of Engineering and Technology)
- Federal Project Director (Field)
- DOE Liaison
- Contractor
- Contractor Liaison
- Team Leader
- Team Members



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Training

- How do we standardize how TRAs are conducted in the future – Training Plan
- Need to Train: Trainers, TRA Team Leads, TRA Team Members



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Training - Approach

- 2 Training Programs
 - Trainers – will be an established group, and will train Team Leads
 - Team Members – will be trained by Team Leads
- Reviewing DoD experiences and courses
- Thank you Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics (OSD-ATL)
 - Institute for Defense Analysis (IDA)



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Training Manuals

- DOE-EM will prepare training manuals for each of the two groups
- Training manuals to be revised as TRA/TMP Process Guide is revised



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Next Steps

- Conduct TRA of Salt Waste Processing Facility at Savannah River
- Develop TRA Training documentation and conduct training pilot
- Revise TRA/TMP Process Guide
- Continue to work with other DOE offices, Federal Agencies, Foreign Research Institutes on TRAs



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